

REMARKS/ARGUMENTS

Claims 8-10, and 12-17 are pending. Claims 8, 12, and 15 have been amended. The specification has been amended. No new matter has been introduced.

In the specification, paragraph [0006] corresponds to paragraph [0005] of the priority Japanese patent application. A copy of the Japanese priority application 2002-319434 and an English translation thereof are submitted herewith. Paragraph [0006] of the present application has been amended according to the English translation of the Japanese priority application. The amended paragraph more clearly states that the prior art technique could not be used to make a luster film with enough thickness by electroplating because of white turbidity, bumps of the film surface.

Claims 8-10 and 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shouji et al. (US 6,033,580) in view of Chen et al. (US 6,776,891).

Claims 8-10

Applicants respectfully submit that claim 8 is patentable over Shouji et al. and Chen et al. because, for instance, they do not teach or suggest a magnetic layer, which is formed by electroplating in a plating bath having pH value of 2 or less and containing saccharin sodium to produce a thickness of 3 μm or more for said magnetic layer, and is nearest to the magnetic gap of the magnetic layers, and contains Co, Ni, and Fe, with $20 \leq \text{Co} \leq 40 \text{ wt\%}$, $0 < \text{Ni} \leq 2 \text{ wt\%}$, and $60 \leq \text{Fe} \leq 80 \text{ wt\%}$, and has a saturation magnetic flux density of 23,000 gauss or more. The present invention provides a smooth, thick, glossy, and clear CoNiFe alloy film with a high corrosion resistance so that a saturation flux density of 23000 gauss or more has been achieved. See paragraph [0010] at page 2, lines 15-17; and paragraph [0041] at page 8, lines 17-21. As described in paragraph [0013], the advantage of forming the plated film in a plating bath containing saccharin sodium is that it is possible to attain a thick film, with a thickness of 3 μm or more.

Shouji et al. discloses an upper and a lower pole and a gap layer, but it does not disclose a magnetic layer containing Co, Ni, and Fe, with $20 \leq \text{Co} \leq 40 \text{ wt\%}$, $0 < \text{Ni} \leq$

2 wt%, and $60 \leq \text{Fe} \leq 80$ wt%, and also does not disclose a magnetic layer having a saturation magnetic flux density of 23,000 gauss or more. It merely discloses 81-permalloy (81 Ni-19 Fe), 94 Co-6Fe, 45 Ni-55 Fe, or FeTaN, and 30 Fe-25 Co-45 N, which also does not have a saturation magnetic flux as in the claimed invention (col. 6, lines 61-65). In addition, Shouji fails to disclose electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for the magnetic layer as in the claimed invention.

Chen et al. discloses a method for forming a thin film magnetic alloy suitable for magnetic write heads. It states at column 3, lines 10-17: "In accord with the objects of this invention there is provided an alloy of Co-Fe-M, wherein the element M can be chosen from the group consisting of Mo, Cr, W, Ni or Rh and wherein said alloy has a composition of the form $\text{Co}_{100-a-b}\text{Fe}_a\text{M}_b$, wherein a is between 50 and 80 and b is between 0 and 10 and wherein the as-deposited saturation magnetic moment is greater than 20 kG and the easy-axis coercivity is less than 7 Oe."

Chen et al., however, does not disclose to which portion the plated film is applied. Moreover, Chen et al. fails to teach or suggest electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for the magnetic layer of the magnetic core. The thick magnetic layer has the property of providing a smooth surface when cut along any portion according to the film developing direction.

In the present application, the specification itself has established that the prior art techniques could not produce the desired film with sufficient thickness (see paragraph [0006]). The claimed invention recites a thickness of 3 μm or more for the magnetic layer produced by a method with the claimed parameters that are commensurate in scope with the claimed thickness.

Nothing in Chen et al. discloses the recited the thickness or indicates that the recited parameters are important to achieve the claimed thickness. Thus, this is not a situation where the general conditions of a claim are disclosed in the prior art, so that the recited range is not merely the discovery of the optimum or workable ranges by routine experimentation.

For at least the foregoing reasons, claim 8 and claims 9-10 depending therefrom are patentable over Shouji et al. and Chen et al.

Claims 15-17

Applicants respectfully submit that independent claim 15 is patentable over the cited references because, for instance, they do not teach or suggest a first magnetic layer formed by electroplating in a plating bath having pH value of 2 or less and containing saccharin sodium to produce a thickness of 3 μm or more for said first magnetic layer; wherein at least a first part of the first magnetic layer contains Co, Ni, and Fe, with $20 \leq \text{Co} \leq 40 \text{ wt\%}$, $0 < \text{Ni} \leq 2 \text{ wt\%}$, and $60 \leq \text{Fe} \leq 80 \text{ wt\%}$, and has a saturation magnetic flux density of 23,000 gauss or more.

As discussed above, the recited composition of the nearest magnetic layer is different from that of the nearest magnetic layer in Shouji et al., which does not disclose a magnetic layer containing Co, Ni, and Fe, with $20 \leq \text{Co} \leq 40 \text{ wt\%}$, $0 < \text{Ni} \leq 2 \text{ wt\%}$, and $60 \leq \text{Fe} \leq 80 \text{ wt\%}$, and also does not disclose a magnetic layer having a saturation magnetic flux density of 23,000 gauss or more. It merely discloses 81-permalloy (81 Ni-19 Fe), 94 Co-6Fe, 45 Ni-55 Fe, or FeTaN, and 30 Fe-25 Co-45 N, which also does not have a saturation magnetic flux as in the claimed invention (col. 6, lines 61-65). In addition, Shouji fails to disclose electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for the magnetic layer of the magnetic core as in the claimed invention.

Chen et al. fails to cure the deficiencies of Shouji et al. For example, Chen et al. does not disclose to which portion the plated film is applied, and electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for the magnetic layer.

For at least the foregoing reasons, claim 15 and claims 16-17 depending therefrom are patentable over Shouji et al. and Chen et al.

Claims 12-14

Claims 12-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shouji et al. in view of Chen et al. and Hashimoto et al. (US 2003/0188422A1).

Applicants respectfully submit that new independent claim 12 is patentable over the cited references because, for instance, they do not teach or suggest forming a second magnetic layer on the underlayer by electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for said second magnetic layer; wherein at least a first part of the second magnetic layer contains Co, Ni, and Fe, with $20 \leq \text{Co} \leq 40$ wt%, $0 < \text{Ni} \leq 2$ wt%, and $60 \leq \text{Fe} \leq 80$ wt%, and has a saturation magnetic flux density of 23,000 gauss or more.

As discussed above, the recited composition of the nearest magnetic layer is different from that of the nearest magnetic layer in Shouji et al., which does not disclose a magnetic layer containing Co, Ni, and Fe, with $20 \leq \text{Co} \leq 40$ wt%, $0 < \text{Ni} \leq 2$ wt%, and $60 \leq \text{Fe} \leq 80$ wt%, and also does not disclose a magnetic layer having a saturation magnetic flux density of 23,000 gauss or more. It merely discloses 81-permalloy (81 Ni-19 Fe), 94 Co-6Fe, 45 Ni-55 Fe, or FeTaN, and 30 Fe-25 Co-45 N, which also does not have a saturation magnetic flux as in the claimed invention (col. 6, lines 61-65). In addition, Shouji fails to disclose electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for the magnetic layer of the magnetic core as in the claimed invention.

Chen et al. fails to cure the deficiencies of Shouji et al. For example, Chen et al. does not disclose to which portion the plated film is applied, and electroplating in a plating bath containing saccharin sodium to produce a thickness of 3 μm or more for the magnetic layer.

Hashimoto et al. is cited merely for allegedly disclosing an underlayer meeting the process and structural limitations. It does not cure the deficiencies of Shouji et al. and Chen et al.

For at least the foregoing reasons, claim 12 and claims 13-14 depending therefrom are patentable over Shouji et al., Chen et al., and Hashimoto et al.

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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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